



PATENT
P55792

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

YOUNG-HO CHO

Serial No.: 09/382,681

Examiner: *to be assigned*

Filed: 25 August 1999

Art Unit: 2742

For: SUBSCRIBER LINE INTERFACE CIRCUIT OF EXCHANGE SYSTEM

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner
for Patents
Washington, D.C. 20231

Sir:

In accordance with 37 C.F.R. §1.56, and §§1.97 and 1.98 as amended, Applicant cites, provides copies and discusses the following art references:

1. U.S. Patent No. 4,887,293 to Molnar, entitled *TRUNK CIRCUIT WITH LOOP LENGTH GAIN EQUALIZATION*, issued on December 12, 1989. Molnar '293 discloses a trunk circuit with loop length gain equalization included in a key service unit which has line circuits connected to a plurality of subscribers through conductors and trunk circuits connected to ring and tip lines.
2. U.S. Patent No. 4,953,200 to Yamasaki, entitled *PRIVATE BRANCH EXCHANGE*

CAPABLE OF DISCRIMINATING DIFFERENT TYPES OF TELEPHONE SETS CONNECTED THERETO, issued on August 28, 1990. Yamasaki '200 discloses a private branch exchange capable of discriminating different types of telephone sets. The private branch exchange includes a current limiting circuit for limiting a current supplied from a power source device through a voice line in accordance with a detected output from a current detection device. The current limiting circuit includes a first transistor for current amplification, a second transistor and a register for current feedback to stabilize the emitter current of the first transistor connected to the line.

3. U.S. Patent No. 4,358,643 to Levy, entitled *TWO TO FOUR WIRE HYBRID CIRCUIT*, issued on November 9, 1982. Levy '643 discloses a two to four wire hybrid circuit including a transformer of a line coupling circuit connected to a terminal line, amplifiers assigned to a receiving branch or transmitting branch of a transmission line, and a balance network disposed between the line coupling circuit and the amplifiers and including an attenuator and hybrid impedance.

4. U.S. Patent No. 5,602,912 to Hershbarger, entitled *TELEPHONE HYBRID CIRCUIT*, issued on February 11, 1997. Hershbarger '912 discloses a telephone hybrid circuit for maximizing dynamic range of a receive signal without interference from a transmit signal.

5. U.S. Patent No. 5,608,795 to Gay, entitled *TELEPHONE LINE INTERFACE CIRCUIT*, issued on March 4, 1997. Gay '795 discloses a telephone line interface circuit including a transmit path for coupling to a telephone line and a receive line, a receive path for coupling to the telephone line, a first amplifier included in the transmit path, and a second amplifier included in the receive path.
6. U.S. Patent No. 5,710,811 to Tomasini *et al.*, entitled *SPEECH CIRCUIT FOR SUBSCRIBER TELEPHONE APPARATUS*, issued on January 20, 1998. Tomasini *et al.* '811 discloses a speech circuit for subscriber telephone apparatus and for matching the impedance of the telephone line by synthesizing complex impedance.
7. U.S. Patent No. 4,456,991 to Chea Jr. *et al.*, entitled *TELEPHONE LINE CIRCUIT AND SYSTEM*, issued on June 26, 1984. Chea, Jr. *et al.* '991 discloses a telephone line circuit and system for interfacing digital exchange line circuits to a terminal interface of a switching network.
8. U.S. Patent No. 4,381,561 to Treiber, entitled *ALL DIGITAL LSI LINE CIRCUIT FOR ANALOG LINES*, issued on April 26, 1983. Treiber '561 discloses an all digital LSI line circuit for analog lines which is a simplified integrated hardware structure to achieve the combination on an LSI chip of an electronic two-to-four wire hybrid,

line impedance matching by automatic digital impedance synthesizing of an output impedance and an all LSI telephone line circuit including automatic equalizing.

9. U.S. Patent No. 4,759,059 to Christensen, entitled *ANALOG TELEPHONE CIRCUIT FOR DIGITAL TELEPHONE SYSTEM*, issued on July 19, 1988. Christensen '059 discloses an analog telephone circuit for digital telephone system having an interface circuit for interconnecting the analog telephone device with a digital telephone system.
10. U.S. Patent No. 3,982,078 to Janssen *et al.*, entitled *LINE MATCHING CIRCUIT FOR USE IN A TONE PUSHBUTTON DIALING SUBSCRIBER'S SET PROVIDED WITH A TONE GENERATOR*, issued on September 21, 1976. Janssen *et al.* '078 discloses a line matching circuit including two voltage regulating transistors having emitter-collector terminals connected in parallel with a potentiometer, the output of a pushbutton of the telephone set, and the output of a pushbutton tone generator amplifier.
11. U.S. Patent No. 4,461,929 to Britt, entitled *AMPLIFIER FOR ELECTRONIC AND ELECTRO-MECHANICAL TRANSMITTERS*, issued on July 24, 1984. Britt '929 discloses an amplifier for electronic and electro-mechanical transmitters.

The citation of the foregoing references is not intended to constitute an assertion that other or more relevant art does not exist. Accordingly, the Examiner is requested to make a wide-ranging and thorough search of the relative arts.

No fee is incurred by this Statement.

Respectfully submitted,



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